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(54) IMAGE FORMING DEVICE

(57)Abstract:

PROBLEM TO BE SOLVED: To obtain a high-quality transferred image without any image distortion by reducing the fluctuation of torque acting on the driving means of an image carrier.

SOLUTION: This image forming device in which a recording medium 7 is carried between the image carrier 1 and a pressure imparting member 5 disposed opposedly in press-contact with the carrier 1 and a toner image formed on the carrier 1 is transferred on the medium 7 or fixed simultaneously with the transfer is provided with a recording medium detection means 9c detecting the medium 7 carried to the press-contact part of the carrier 1 and the imparting member 5, a timing generation means 9b generating such timing that the medium 7 rushes in the press-contact part based on a signal detected by the detection means 9c and an image carrier load control means 9a controlling the braking load of an image carrier driving means 9 driving the carrier 1 according to a timing signal from the generation means 9b so that it is reduced or eliminated.

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CLAIMS

[Claim(s)]

[Claim 1] A record medium is conveyed between the pressure grant members arranged so that a pressure welding might be carried out to image support and said image support face to face. In the image formation equipment fixed to said record medium in the toner image formed on said image support at an imprint or an imprint, and coincidence A record-medium detection means to detect said image support and said record medium conveyed in the pressure-welding section of said pressure grant member, A timing generation means to generate the timing to which said record medium rushes into said pressure-welding section based on the detecting signal of said record-medium detection means, Image formation equipment characterized by establishing an image support load-control means to control to decrease or remove the braking load of the image support driving means which drives said image support according to the timing signal from said timing generation means.

DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[Industrial Application] This invention relates to the image formation equipment which is concerned with image formation equipment, and imprints the toner image by which development formation was especially carried out on image support on a record medium with application of pressure, or application of pressure and heating, or is fixed to an imprint and coincidence.

[0002]

[Description of the Prior Art] A latent image is formed in image support, such as a photo conductor of the shape of the shape of a drum; and a belt, or a dielectric, in image formation equipments, such as a printer, a copying machine, and facsimile, after imprinting that which developed this using developers, such as a toner, electrostatic to record media, such as a form, the method established with application of pressure/heating, or after imprinting, it is established by application of pressure, or the method simultaneously established at the time of an application-of-pressure imprint is learned.

[0003] The former uses the toner of thermofusion nature for a developer, and uses the pressure fixing toner called the so-called capsule toner as a developer in the latter. Image formation equipment using the toner of the pressure fixing method of the above-mentioned latter as a developer has disclosure in JP, 4-15953, A or JP, 56-116064, A.

[0004] Drawing 11 is a mimetic diagram explaining the example of a configuration of the image formation equipment which made the toner of a pressure fixing method the developer. The photo conductor drum as image support and 2 1 The electrification roll as an electrification means, 3 laser and 3b for the equipment write-in [optical] as latent-image means forming, and 3a A polygon mirror, 3c a developer and 4a for a reflective mirror and 4 an optical lens system and 3d A pressure fixing method toner A development roll and 4c (it is only hereafter called a toner) and 4b A toner image, 5 -- for a cleaning blade and 7, a record medium and 7a are [the pressure roll as a pressure grant member, and 6 / cleaning equipment and 6a / a registration roll (the so-called REJIROU) and 7c of a delivery roll and 7b] blowdown rolls.

[0005] In this drawing, the front face of the photo conductor drum 1 is uniformly charged with the electrification roll 2. Laser 3a of equipment 3 write-in [optical] discharges the laser light L modulated by the picture signal, scans the photo conductor drum 1 for this through polygon mirror 3b, optical lens system

3c, and reflective mirror 3d, and forms an electrostatic latent image. If this electrostatic latent image arrives at the location of a developer 4 by revolution of the photo conductor drum 1, negatives will be developed by toner 4a supported by development roll 4b, and it will develop as toner image 4c.

[0006] Toner image 4c arrives at imprint/fixation part to which the pressure roll 5 has been arranged, when the photo conductor drum 1 rotates further. On the other hand, a record medium 7 is taken out in the direction of REJIRORU 7b by delivery roll 7a, and is sent out to imprint/fixation part by the REJIRORU 7b concerned synchronizing with the above-mentioned toner image 4c.

[0007] Fixation is made at the same time the record medium 7 which advanced into imprint/fixation part has the gap of the pressure-welding section (henceforth the nip section) of the photo conductor drum 1 and the press roll 5 conveyed and the toner image on the photo conductor drum 1 is imprinted by the pressure with the press roll 5. The record medium 7 with which the toner image was imprinted is discharged by blowdown roll 7c outside the plane [of image formation equipment].

[0008] In addition, an anchorage device can be installed in the latter part of an imprint part, and it can also constitute so that it may be anew established after an imprint. Although the above-mentioned configuration is image formation equipment by the toner of a single color, in what forms a color picture by the superposition of two or more color toner, the developer which uses a developer 4 as the so-called color developer which has the toner of a necessary color, or has the toner of a necessary color in a belt-like photo conductor is arranged or imprinted to a tandem (). Or color picture formation can be performed by considering as the configuration which prepared the conveyance way which returns the record medium after an imprint/fixation to a REJIRORU side.

[0009] As described above, it consists of this kind of image formation equipment so that it may be fixed to the record medium conveyed between the pressure rolls which carry out the pressure welding of the toner image formed on image support to the above-mentioned image support and this image support with a pressure at an imprint or an imprint, and coincidence. Therefore, with this conventional kind of image formation equipment, the pressure welding of the above-mentioned image support and the pressure roll is carried out with the linear pressure of about 5-20Ns/mm.

[0010]

[Problem(s) to be Solved by the Invention] However, in such image formation equipment, a record medium is conveyed by the pressure-welding section of the image support and the pressure grant member to which the predetermined pressure is impressed, and rushes into the nip location concerned. Image support is driven through the image support driving means (only henceforth a driving means) which consists of the gear train which transmits a motor and its turning effort, and a pressure grant member is followed and rotated to the revolution of image support.

[0011] If a record medium rushes into the pressure-welding section of this image support and a pressure grant member, impulse torque fluctuation will occur in the above-mentioned driving means. If such torque fluctuation occurs when a record medium rushes into the above-mentioned pressure-welding section, nonuniformity will arise in the revolution of image support, and there is a problem which distortion occurs in the image which a gap arises in the relative position between the toner images and record media which are formed in the front face of image support, and is formed in it, and serves as an image defect.

[0012] Before it establishes a thickness detection means to detect the thickness of a record medium in the middle of the conveyance way to the above-mentioned pressure-welding section of a record medium and a record medium rushes in as a means to solve such an image defect as indicated by JP, 4-355782, A, for example, what eased the above-mentioned torque fluctuation is known by extending the nip gap (gap) of the pressure-welding section to thickness extent of a record medium.

[0013]However, since the thrust needed for an imprint or an imprint / fixation is no longer obtained as a nip gap is brought close to the thickness of a record medium, the above-mentioned nip gap cannot be extended until torque fluctuation is completely lost. Therefore, with the conventional technique, the above-mentioned torque fluctuation could not be canceled but the image defect had still occurred.

[0014]Moreover, since the thickness detection means currently indicated by above-mentioned JP,4-355782,A was equipped also with the bias function of a pressure grant member, it had the problem that the configuration simplification of image formation equipment, a miniaturization, or cost reduction was difficult, with complication of equipment, or enlargement of equipment. In addition, although considering as the effective means which lessens impulse torque fluctuation of a driving means, and using a flywheel from the former is known, weight-ization of equipment will not be avoided if a flywheel is attached.

[0015]Moreover, as for drawing, this ***** that controls the above-mentioned torque fluctuation has a limit also in reduction of this thrust in reduction of thrust not only by the pressure but by the thing for which heating and electric field are added auxiliary. That is, drawing 12 is the explanatory view of the organic-functions assessment result of the copy quality at the time of changing the contact pressure of image support and a pressure grant member, and imprinting an image.

[0016]As shown in this drawing, when the contact pressure (linear pressure: N/mm) of image support and a pressure grant member is changed with 2, 3, 4, 5, and 6- and it imprints, using a regular paper as a record medium, it is hard to permit the image distortion on the record medium resulting from the torque fluctuation at the time of a linear pressure rushing into the nip section of image support and a pressure grant member by mm in 5Ns /or more (image quality NG).

[0017]And although an image distortion reaches a permissible level at last in mm in 4Ns /, an image distortion still has a linear pressure in the identifiable range. Therefore, when the linear pressure of 4Ns/mm or more is impressed, generating of an image distortion is not avoided. With the image formation equipment of the pressure imprint which uses neither auxiliary heating which was described above, nor electric field, or imprint/fixation method, the above-mentioned linear pressure cannot be reduced and the imprint of a good toner image cannot be performed in the linear pressure of 3Ns/mm or less shown in drawing 12.

[0018]The object of this invention is to simplify the configuration of image formation equipment and offer a light weight and the image formation equipment which it miniaturized [equipment] and reduced installation area while obtaining the transfer picture of the high quality which solves many problems of the above-mentioned conventional technique, makes small torque fluctuation which acts on the driving means of image support, and does not have an image distortion.

[0019]

[Means for Solving the Problem]In order to attain the above-mentioned object, this invention conveys a record medium in the pressure-welding section (pressure-welding gap: nip gap) with the pressure grant member which countered image support and this image support, and has been arranged, and is characterized by making the driving means of said image support possess a damping device in the image formation equipment fixed to said record medium in the toner image formed on said image support at an imprint or an imprint, and coincidence.

[0020]Moreover, when it has an intrush timing detection means by which said record medium detects the timing which rushes into the pressure-welding section of said image support and said pressure grant member and said record medium rushes into said pressure-welding section, it is characterized by controlling so that said

braking means removes a braking load temporarily. Furthermore, it is characterized by having a thickness detection means to detect the thickness of said record medium, determining a braking load just before said record medium of said braking means rushes into the pressure-welding section of said image support and said pressure grant member, and the magnitude of the braking load clearance time amount at the time of inrush according to the output signal of said thickness detection means, and performing braking control.

[0021] If it is made to correspond with an example and indicates with the sign in order to clarify this invention, it will become like next. Namely, invention according to claim 1 conveys a record medium 7 between the pressure grant members 5 arranged so that a pressure welding might be carried out to the image support 1 and said image support face to face. In the image formation equipment fixed to said record medium in the toner image formed on said image support at an imprint or an imprint, and coincidenceRecord-medium detection means 9c which detects said image support 1 and said record medium 7 conveyed in the pressure-welding section of said pressure grant member 5, Timing generation means 9b which generates the timing to which said record medium 7 rushes into said pressure-welding section based on the detecting signal of said record-medium detection means 9c, It is characterized by preparing image support load-control means 9a controlled to decrease or remove the braking load of the image support driving means 9 which drives said image support 1 according to the timing signal from said timing generation means 9b.

[0022] In addition, although some which were indicated by JP,4-345173,A are one of those which made the driving means of image support possess a braking means, the property and magnitude completely differ from the impulse revolution fluctuation generated in the pressure imprint with which the object of invention given in the official report concerned is generated by the gear mesh of a drive system etc., and which it is in reduction of very small revolution fluctuation, and is the object of this invention, and an imprint/fixation.

[0023]

[Function] In the configuration of above-mentioned this invention, a record medium is conveyed in the gap of the pressure-welding section with the pressure grant member countered and arranged in image support and said image support, and in case the toner image formed on said image support is imprinted to said record medium, when said record medium rushes into said pressure-welding section, said braking means gives suitable damping force to the driving means of said image support, and eases the torque fluctuation by inrush of said record medium.

[0024] Moreover, said record medium detects the timing which rushes into the gap of said pressure-welding section, and an inrush timing detection means eases the impulse torque fluctuation which removes the braking load of said braking means temporarily at the detected flash, and is produced in the driving means concerned. Furthermore, according to the detecting signal of a thickness detection means which detects the thickness of a record medium, the braking load of said braking means just before said record means rushes into the gap of said pressure-welding section, and the magnitude of the braking load clearance time amount at the time of inrush are determined, and torque fluctuation is effectively eased also to the record medium with which thickness differs because this controls said braking means.

[0025] That is, in the configuration of this invention given in said claim, said record-medium detection means 9c detects said image support 1 and said record medium 7 conveyed in the pressure-welding section of said pressure grant member 5. Said timing generation means 9b generates the timing to which said record medium 7 rushes into said pressure-welding section based on the detecting signal of said record-medium detection means 9c.

[0026] And said image support load-control means 9a is controlled to decrease or remove the braking load of the image support driving means 9 which drives said image support 1 according to the timing signal from said timing generation means 9b.

[0027]

[Example] Hereafter, with reference to a drawing, it explains to a detail about the example of this invention. the mimetic diagram drawing 1 explains the basic configuration of one example of the image formation equipment by this invention to be -- it is -- 1 -- for a record medium and 9, an image support driving means and 9a are [image support and 5 / a pressure grant member and 7 / a timing generation means and 9c of an image support load-control means and 9b] record-medium detection means.

[0028] In this drawing, the image support 1 supports the toner image which developed formation of a latent image, and this latent image with the toner, and rotates. A pressure welding is carried out to this image support 1, the pressure grant member 5 is formed, and the toner image which conveyed the record medium 7 in the pressure-welding gap with the above-mentioned image support 1, and was formed on the image support 1 concerned is imprinted on a record medium 7 with a pressure. In addition, it can be fixed to this imprint and coincidence.

[0029] The above-mentioned image support 1 rotates by the image support driving means 9, and the above-mentioned pressure grant member 5 follows with a pressure welding with this image support 1, and it rotates it. The image support 1 is controlled by image support load-control means 9a, record-medium detection means 9c detects arrival of a record medium 7, timing generation means 9b outputs a load-control signal to image support load-control means 9a based on this detecting signal, this load-control signal output is based, and the image support driving means 9 removes the braking load of the image support 1.

[0030] Thereby, torque fluctuation of the image support 1 by inrush of a record medium is eased thru/or prevented, and can imprint a high-definition image. Drawing 2 is a mimetic diagram explaining the example of a configuration of the imaging section in one example of the image formation equipment by this invention, and 1 is the photo conductor drum of the diameter of 30mm as image support, and 240mm of field length. Although metals, such as aluminum and stainless steel, or the electric-conduction--ization-processed engineering plastics can be used for the sensitization layer at rodding using a selenium, OPC, an amorphous silicon, and other known sensitive material, in this example, stainless steel is used for rodding for the amorphous silicon as a sensitization layer.

[0031] Moreover, 2 is an electrification machine which electrifies the front face of the photo conductor drum 1 in homogeneity, a roll, a brush, corotron, etc. are used and corotron is used in this example. 3 is equipment write-in [optical] which is latent-image means forming, it consists of laser etc. and the light wave length is chosen according to the sensibility wavelength region of a photo conductor. For a toner and 8a, a toner image and 8b of a fixation image and 8c are [the pressure roll whose 4 is a development counter and whose 5 is a pressure grant member, the form cleaning equipment and whose 7 are record media as for 6, and 8 / a residual toner and 51] the pressure-welding sections.

[0032] In this drawing, the photo conductor drum 1 rotates in the arrow-head 11 direction with the driving gear mentioned later. This revolution is for example, peripheral-speed 50 mm/s. Front face of the photo conductor drum 1 For example, it is charged in -200V and the electrostatic latent image corresponding to a necessary image is formed by equipment 3 write-in [optical]. Although any of the so-called 1 component system and binary system are sufficient as the developer contained by the development counter 4 and it is usable also with conductivity or insulation, when established with a pressure about the toner developed, a thing with pressure fixable is required. Moreover, when using heat together, the activity of the conventional toner for heat fixation is possible.

[0033] In this example, since it is what is established only by the pressure, the capsule toner of disclosure is used for JP,5-165249,A. Toner image 8a by which

toner development was carried out with the development counter 4 arrives at the part which performs imprint, imprint / fixation with a revolution of the photo conductor drum 1. The part which performs this imprint, and an imprint/fixation is the pressure-welding section 51 of the photo conductor drum 1 and the pressure roll 5, and the pressure welding of the pressure roll 5 is carried out to 1 whenever [photo conductor] by the pressure grant equipment which is not illustrated in this pressure-welding section 51 with the linear pressure of 5-30Ns/mm, and 0.1 - 0.4 crossed axes angles.

[0034]The pressure which the pressure roll 5 comes to cover high degree-of-hardness resin on the roll made from carbon steel, and is generated in the pressure-welding section 51 is 2-30MPa. The form 7 which measured timing with the paper feed equipment which is not illustrated on the other hand, and has been conveyed is sent into the above-mentioned pressure-welding section 51. Residual toner 8c which an imprint and coincidence were fixed to toner image 8a formed in development on the form 7 in the pressure-welding section 51, it was set to fixation image 8b, and remained on the photo conductor drum 1, without imprinting is removed by cleaning equipment 6. This cleaning equipment can use a well-known brush mold, a blade mold, a forging roll die, etc., and is using the blade in this example.

[0035]The cleaned photo conductor drum 1 is discharged with the electric discharge lamp which is not illustrated, and it has it for the following image formation cycle. Drawing 3 is the front view seen from [of drawing 2 explaining the configuration of the driving gear in this example] arrow-head A, a motor and 92 correspond to the gear train and, as for 93, the same sign as a powder brake and drawing 2 corresponds [9 / a driving gear and 91] to the same part.

[0036]In this drawing, the driving force of a motor 91 is transmitted to the photo conductor drum 1 by the gear train 92. In addition, it is also possible to replace with this gear train and to use power means of communication, such as a chain or a timing belt. The powder brake 93 which is a braking means can make a braking load able to act using condensation of the magnetic fine particles by impression of electric field, and can change a braking load in proportion to the magnitude of the electric field to impress.

[0037]Such a braking means is not restricted to the above-mentioned powder brake, and is usable in various kinds of brakes using the power of electromagnetic, a mechanical cable type, an oil pressure controller, and others. Moreover, as long as it gives damping force to a driving means, the so-called regenerative-braking method which operates temporarily the method which switches connection/disconnection of the load to a driving means, for example using an electromagnetic clutch, or a motor 91 as a generator may be adopted.

[0038]In this example, although the installation of a braking means is arranged to the photo conductor drum and opposite hand of the gear train 92 to a motor 91, it is also possible to arrange on a motor 91 side, a same axle and photo conductor drum [of the gear train 92] side, or the shaft of a photo conductor drum. Drawing 4 is the explanatory view of the example of a configuration of the control circuit of the driving gear in this example, a brake control circuit and 102 correspond to a control unit, and, as for 103, the same sign as a photo sensor and drawing 3 R> 3 corresponds [101] to the same part.

[0039]Moreover, drawing 5 is the explanatory view of the impression timing of the brake control signal which the brake control circuit of drawing 4 performs. Drawing 4 and drawing 5 explain the control sequence of a driving gear 9. If the form 7 conveyed by the paper feed equipment which is not illustrated reaches a position, the head of a form 7 will be detected by the photo sensor 103. The detection signal of a photo sensor 103 is inputted into an arithmetic circuit 102, and an arithmetic circuit 102 starts the time check by the timer to build in while outputting a signal to the brake control circuit 101 according to the input of the detection signal from a photo sensor 103.

[0040]Impress an electrical potential difference to **** to the powder brake 93

to predetermined timing, and magnetic fine particles are made to carry out an electric-field operation, and an electrical potential difference is made to increase, if the brake control circuit 101 has the input of the signal from an arithmetic circuit 102 until damping force reaches predetermined magnitude. V shows the electrical-potential-difference value at this time. To time amount, since it is very loose, the output of a motor 91 can fully follow change of the braking load of the powder brake 93, and the revolution fluctuation by this is not produced.

[0041]Time amount t1, i.e., time amount which ~~the~~ distance between a photo sensor 103 and the pressure-welding section 51 by the delivery time amount of a form, after a form 7 passes a photo sensor 103, until it rushes into the pressure-welding section 51 of the photo conductor drum 1 and the pressure roll 5 CPU of an arithmetic circuit 102 or the body of image formation equipment memorizes beforehand. An arithmetic circuit 102 outputs a signal in the brake control circuit 101 before the timing to which a form 7 rushes into the pressure-welding section 51, or its minute time amount. The brake control circuit 101 is fixed time amount t2 at the timing. The load of the brake concerned is canceled temporarily, using applied voltage to the between powder brake 93 as off, the predetermined electrical potential difference V is impressed again, and a load is generated.

[0042]Then, an electrical potential difference is decreased to ****, it goes, the load of a brake is reduced, and the copy cycle per one sheet of form is ended. When the back end of a form 7 escapes from the pressure-welding section 51, torque fluctuation of the above and reverse occurs, revolution fluctuation arises similarly, but since formation of the latent image imprinted by the form 7 by this event is usually ended, there is no effect on image quality.

[0043]The braking load of the powder brake 93 just before a form 7 rushes into the pressure-welding section 51 in this example, and load discharge time amount t2 at the time of inrush Magnitude was set to 2 N-m and 40ms, respectively. Drawing 6 is various kinds of wave form charts for explaining the actuation in this example, and (a) is the comparison of the rotational speed in the case where the total torque to which the torque fluctuation by inrush and escape of the form to the pressure-welding section and (b) synthesized braking torque, and (c) synthesized the above-mentioned torque fluctuation and braking torque, and (d) control, and the case of having no control.

[0044]As the dotted line showed to (d), when it controls by the condition of not performing control by this example, compared with impulse torque fluctuation occurring at the time of inrush of a form, it turns out that the above-mentioned torque fluctuation is controlled as the continuous line showed to this drawing. Thereby, in case a form rushes into the pressure-welding section, a revolution of the photo conductor drum 1 can be maintained at stability.

[0045]Drawing 7 is the explanatory view of the organic-functions assessment result of the copy quality at the time of imprinting ***** to this example, and, as for distortion, it turns out that close [a linear pressure's] is in a permissible level by mm in 30Ns /or less in the image obtained by the imprint using a regular paper. It is possible to reduce revolution fluctuation by giving a brake load in impulse similarly also to the torque fluctuation generated at the time of escape of the form from the pressure-welding section.

[0046]Usually, although formation of a latent image is not performed at the time of escape of the form from the pressure-welding section, imaging spacing can be shortened by stabilizing the revolution at the time of escape of a form, and a copy creation rate can be accelerated as a result. Although the brake control circuit 101 considered as the method to which a braking load is quietly changed by changing the electrical potential difference impressed to the powder brake 93 to **** in the above example, if the impulse torque fluctuation at the time of inrush is made to ease, it will not be limited to the above-mentioned configuration.

[0047]Drawing 8 is various kinds of wave form charts for explaining actuation of other examples of this invention, and (a) is the comparison of the rotational

speed in the case where the total torque to which the torque fluctuation by inrush and escape of the form to the pressure-welding section and (b) synthesized braking torque, and (c) synthesized the above-mentioned torque fluctuation and braking torque, and (d) control, and the case of having no control. This example controls the braking load of a damping device by two level, impression and discharge, for the simplification of a control circuit.

[0048] In this drawing, the braking load of a brake is set to 0 in impulse at the time of inrush of the form 7 to the pressure-welding section 51, revolution fluctuation of a photo conductor 1 is reduced by equalizing the sum total (the total torque) of torque, and the effect on image quality is avoided. In this case, after formation of the electrostatic latent image of the form 7 concerned is completed while starting formation of an electrostatic latent image, after impressing a braking load to a damping device and stabilizing a revolution of the photo conductor drum 1 when the electrostatic latent image which should be imprinted by the form 7 concerned is not yet formed on the photo conductor drum 1, it is necessary to control to cancel the braking load of a damping device.

[0049] In order to detect fluctuation of the force of acting on the pressure grant means of a pressure roll, for example by inrush in the pressure-welding section 51 of a form 7, a force sensor is formed in pressure grant equipment, the output is inputted into an arithmetic circuit 102, and you may make it obtain inrush timing, although obtained in this example in the photo sensor 103 and arithmetic circuit 102 where the head of a form 7 has arranged the timing which rushes into the pressure-welding section 51 to the conveyance on the street of a form 7.

[0050] Drawing 9 is the explanatory view of the example of a configuration of further others of the control circuit of the driving gear in this example, and the sign as the thickness sensor and drawing 4 which detect the thickness of a form with 104 [same] corresponds to the same part. In this drawing, the thickness sensor 104 detects the thickness of the form 7 which rushes into the pressure-welding section 51, and impresses this detection output to an arithmetic circuit 102. The reference table is built in the arithmetic circuit 102.

[0051] This reference table is the conversion table of a braking load just before a form 7 rushes into the pressure-welding section 51, and the thickness of load discharge time amount and a form, if the thickness detecting signal of the form from the thickness sensor 104 inputs, will read the braking load and load discharge time amount in front of the inrush corresponding to it to the brake control circuit 101, and will perform predetermined control to the powder brake 93.

[0052] Drawing 10 is an explanatory view as a result of the organoleptic test about that which changed the thickness of a form 7 with 80 micrometers, 100 micrometers, and 150 micrometers, and carried out image formation in the image formation equipment of this example. Also in the case of a thick form, if a linear pressure is 30Ns/mm or less as shown in this drawing, the image distortion is settled in tolerance and can obtain the copy of good image quality.

[0053] each above example -- as the sensitization layer of a photo conductor drum -- an amorphous silicon -- moreover, although explained as image-formation equipment using the laser optical scanner (ROS) as equipment write-in [optical], it cannot be overemphasized that this invention forms an electrostatic latent image on image support, and this is developed, and it is applicable to a record medium on the image support concerned at the thing of any configurations if it is image-formation equipment of an imprint or a configuration of being imprinted simultaneously established.

[0054] Moreover, this invention is applicable also like the image formation equipment of a method using an electrostatic recording head as latent-image means forming, using a dielectric drum as image support. As this kind of an electrostatic recording head, as indicated by the ***** No. 501348 [57 to]

official report, there are so-called ion head which switches the ion generated by inter-electrode discharge by electric field, a multi-stylus mold head which used many needlelike electrodes.

[0055] Furthermore, although above example and various kinds of image formation equipments develop an electrostatic latent image using coloring fine particles and develop it as a fine-particles image. The image formation equipment which develops other formats, i.e., a magnetic latent image which is known as magnetography, by coloring fine particles as a development method using the same coloring fine particles. In addition, after imprinting a developer to a record medium with a pressure, this invention is applicable to the image formation equipment of the method established anew similarly.

[0056]

[Effect of the Invention] As explained above, according to this invention, the copy of the high quality which forms a braking means in the driving means of image support, becomes possible [stabilizing the revolution of image support] by easing the torque fluctuation which joins the above-mentioned driving means, and does not have distortion can be obtained. Moreover, the miniaturization of equipment, lightweight-izing, or the cutback of installation area can perform the configuration of image formation equipment, without being accompanied by complication or weight increase.

[0057] Furthermore, it becomes controllable [which removes a braking load temporarily at the flash when a record medium rushes into the above-mentioned pressure-welding section by having formed the sensor by which a record medium detects the timing which rushes into the pressure-welding section of image support and a pressure grant member], and it becomes possible to make it decrease to the level which cannot recognize distortion of the image at the time of inrush. And by having formed the sensor which detects the thickness of a record medium, it becomes controllable [the braking means according to the thickness of a record medium], and without being based on the thickness of a record medium, it is stabilized and a high-definition copy can be created.

DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]

[Drawing 1] It is a mimetic diagram explaining the basic configuration of one example of the image formation equipment by this invention.

[Drawing 2] It is a mimetic diagram explaining the example of a configuration of the imaging section in one example of the image formation equipment by this invention.

[Drawing 3] It is the front view seen from [of drawing 2 explaining the configuration of the driving gear in one example of the image formation equipment by this invention] arrow-head A.

[Drawing 4] It is the explanatory view of the example of a configuration of the control circuit of the driving gear in one example of the image formation equipment by this invention.

[Drawing 5] It is the explanatory view of the impression timing of the brake control signal which the brake control circuit of drawing 4 performs.

[Drawing 6] They are various kinds of wave form charts for explaining the actuation in one example of the image formation equipment by this invention.

[Drawing 7] It is the explanatory view of the organic-functions assessment result of the copy quality at the time of imprinting an image according to one example of the image formation equipment by this invention.

[Drawing 8] They are various kinds of wave form charts for explaining actuation of other examples of the image formation equipment by this invention.

[Drawing 9] It is the explanatory view of the example of a configuration of further others of the control circuit of the driving gear in other examples of the image formation equipment by this invention.

[Drawing 10] It is an explanatory view as a result of the organoleptic test about that which changed the thickness of a form 7 with 80 micrometers, 100 micrometers, and 150 micrometers, and carried out image formation in the image formation equipment of other examples of the image formation equipment by this invention.

[Drawing 11] It is a mimetic diagram explaining the example of a configuration of the image formation equipment which made the toner of a pressure fixing method the developer.

[Drawing 12] It is the explanatory view of the organic-functions assessment result of the copy quality at the time of changing the contact pressure of image support and a pressure grant member, and imprinting an image.

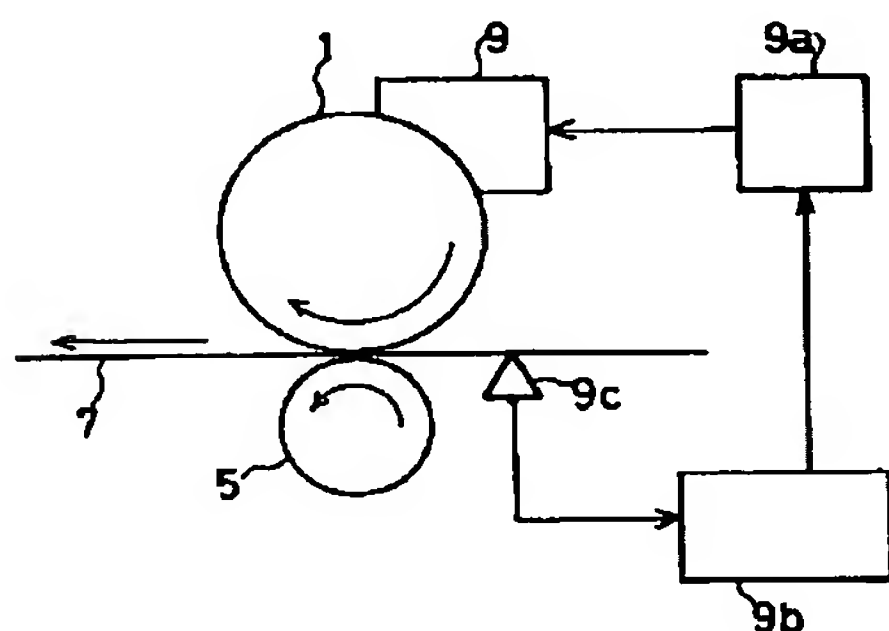
[Description of Notations]

1 [.... An image support driving means 9a / An image support load-control means, 9b / A timing generation means, 9c / A record-medium detection means, 9 / A driving gear, 91 / A motor, 92 / The gear train, 93 / Powder brake] Image support, 5 A pressure grant member, 7 A record medium, 9

DRAWINGS

[Drawing 1]

図1



1: 画像担持体

5: 圧力付与部材

7: 記録媒体

9: 画像担持体駆動手段

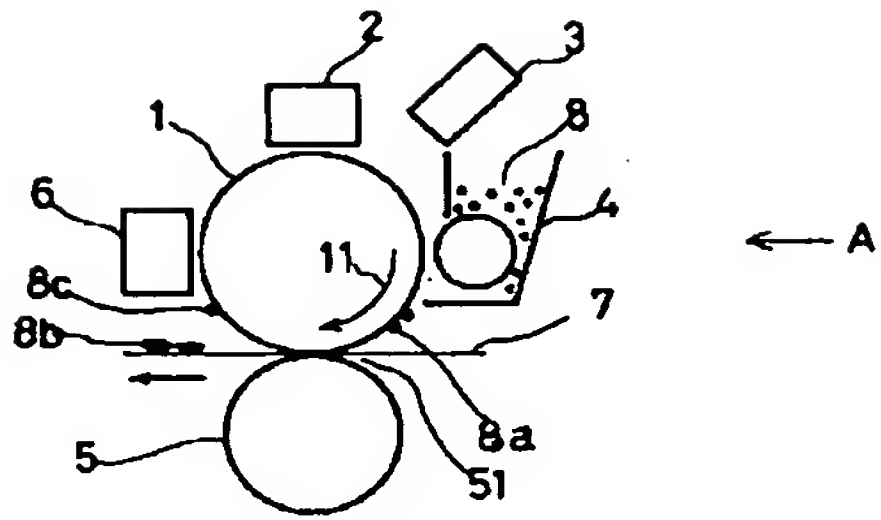
9a: 画像担持体負荷制御手段

9b: タイミング生成手段

9c: 記録媒体検出手段

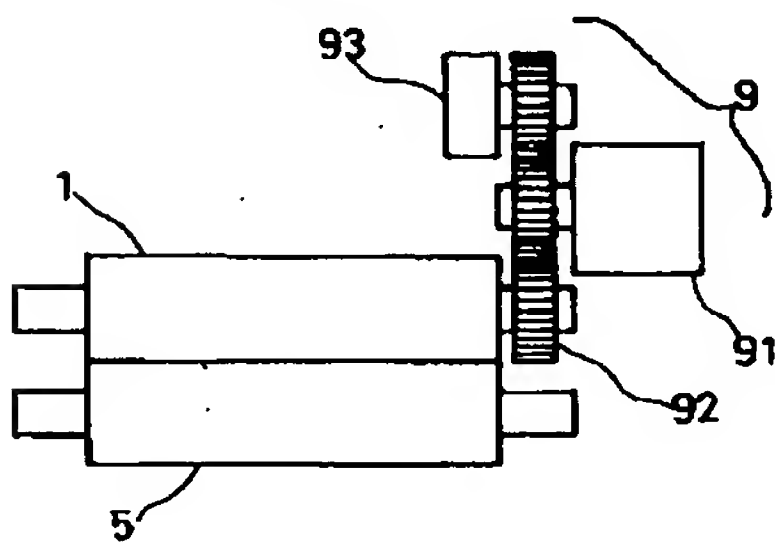
[Drawing 2]

図 2



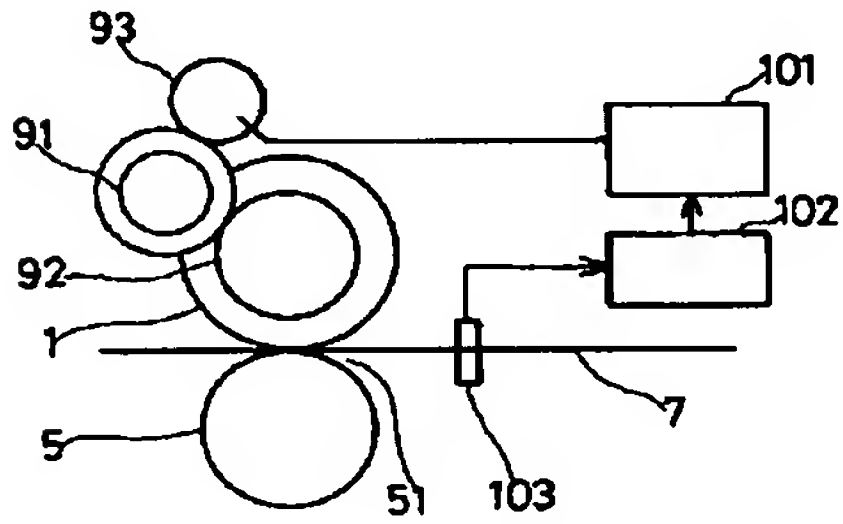
[Drawing 3]

図 3



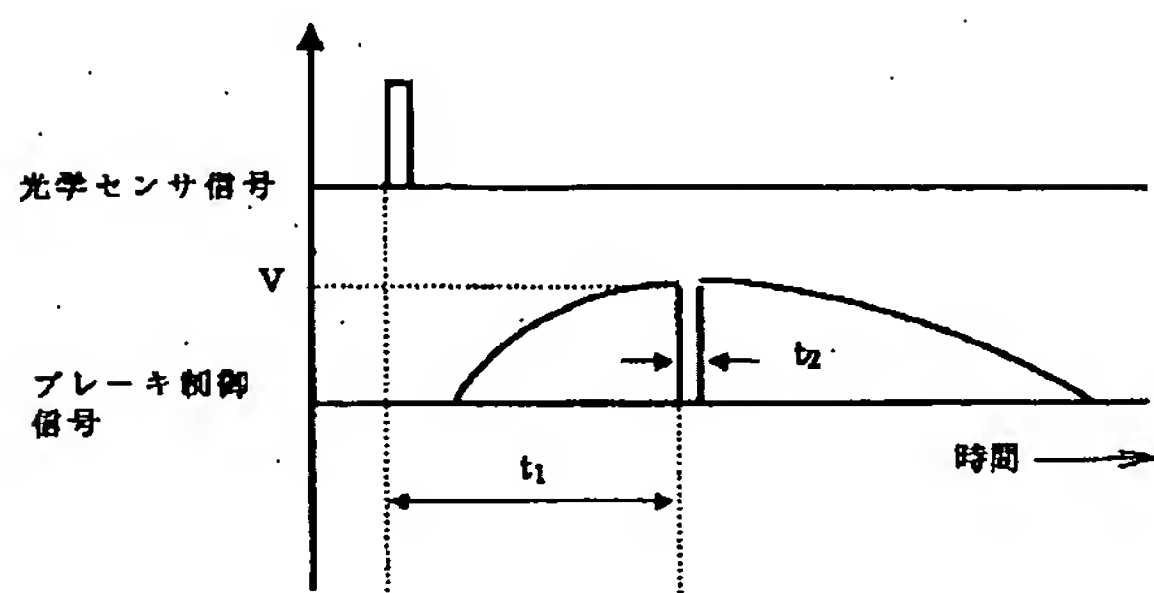
[Drawing 4]

図 4



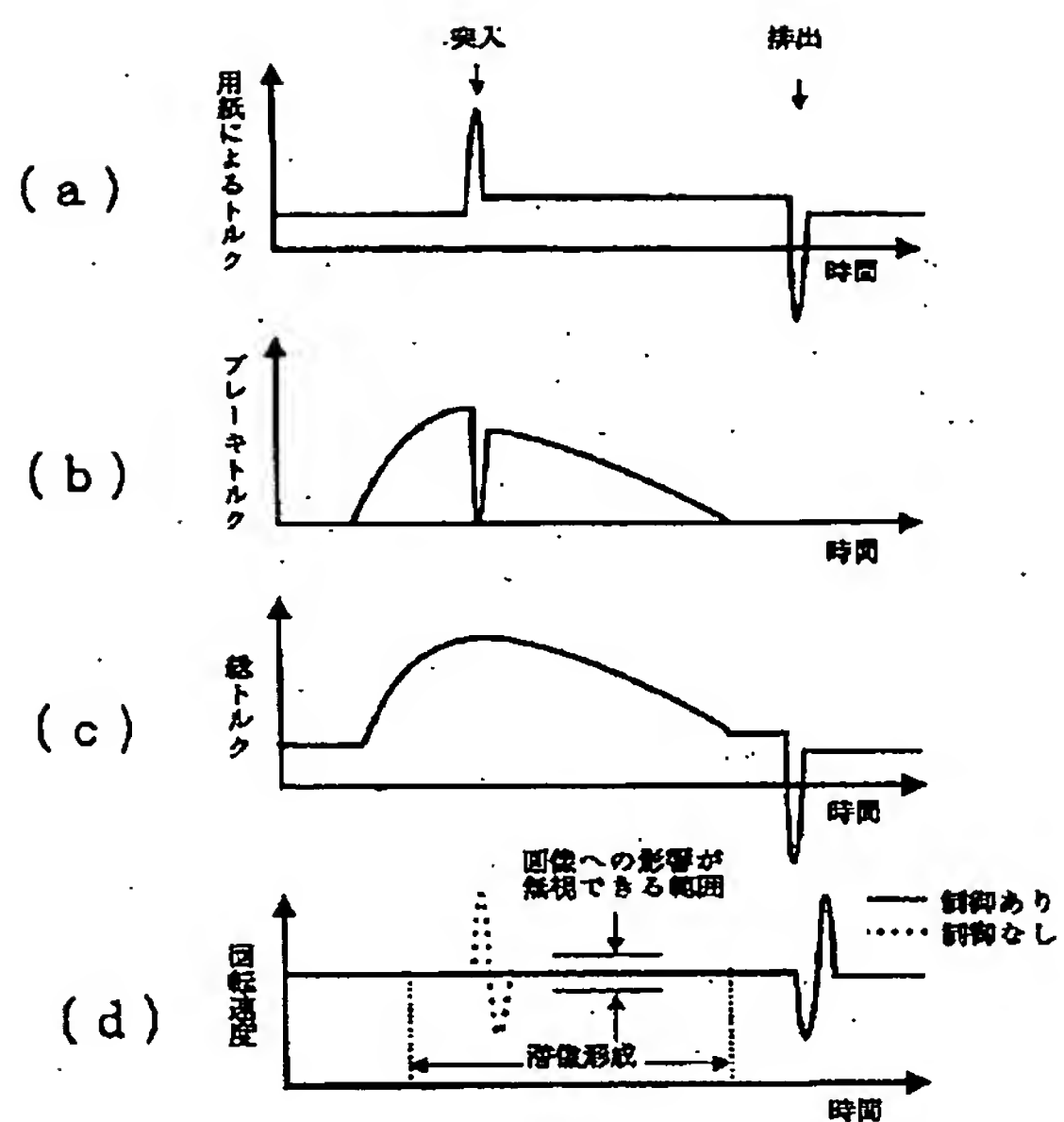
[Drawing 5]

図 5



[Drawing 6]

図 6



[Drawing 7]

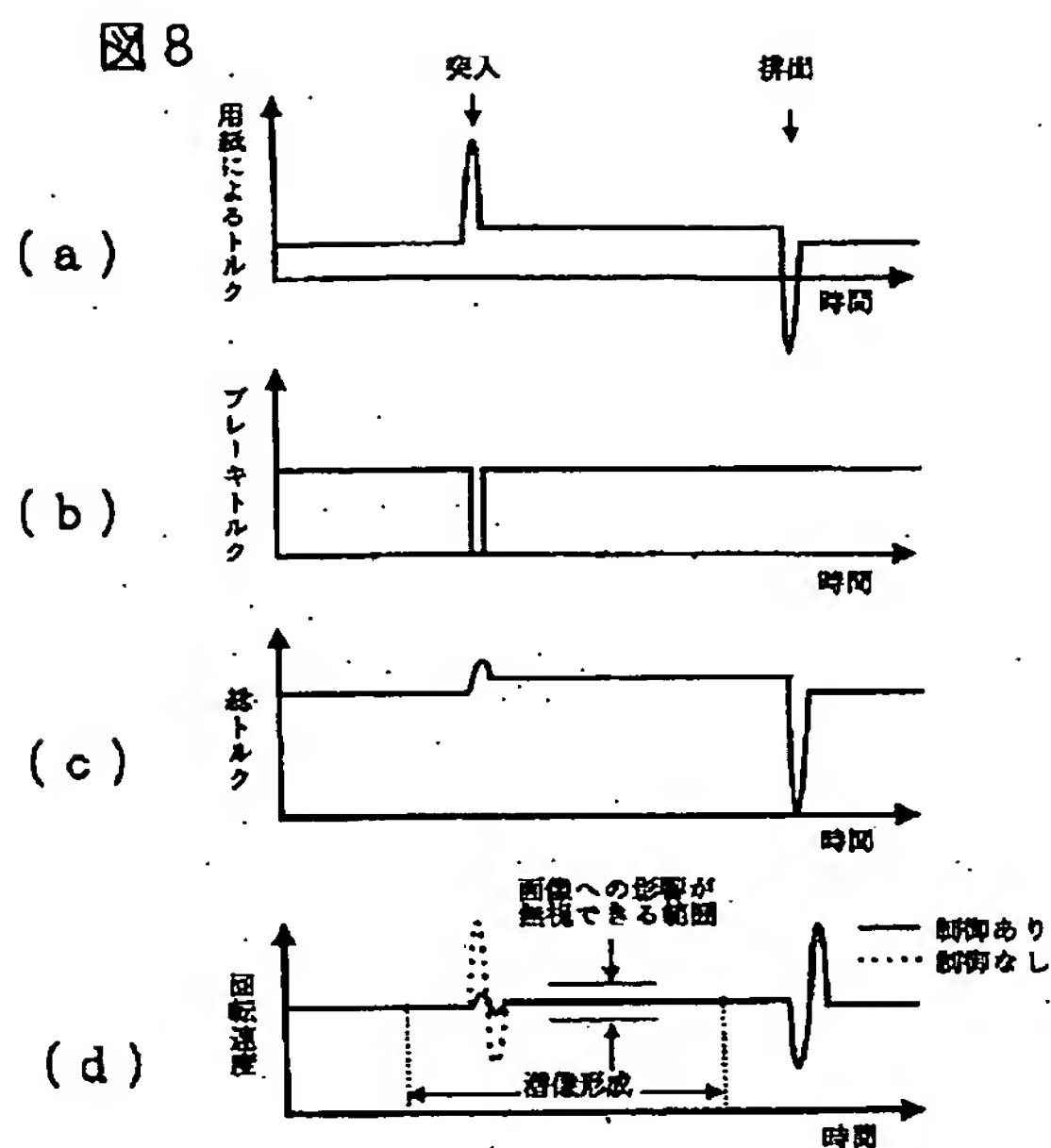
図 7

官能評価結果(本方式)

線圧N/mm	~10	10~20	20~30	30~
普通紙	○	○	△	×

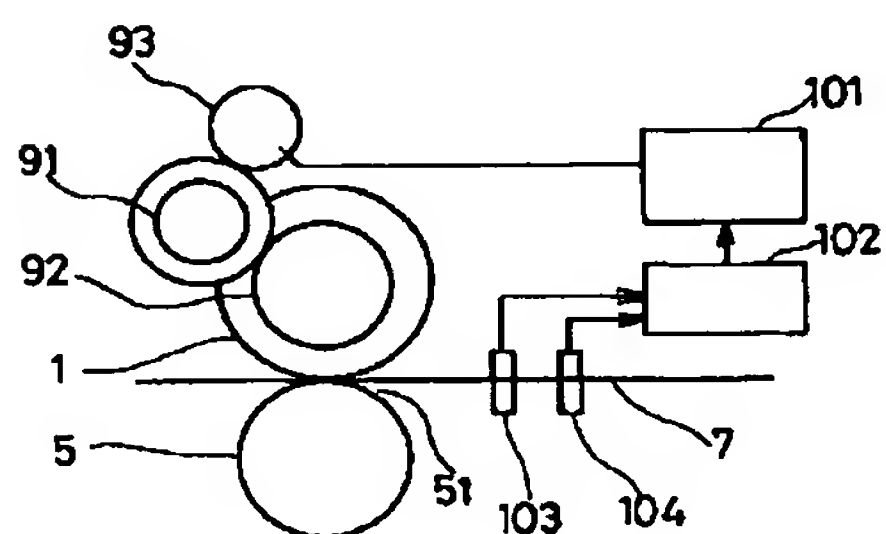
○:画質OK △:識別はできるがOK ×:画質NG

[Drawing 8]



[Drawing 9]

図 9



[Drawing 10]

図 10

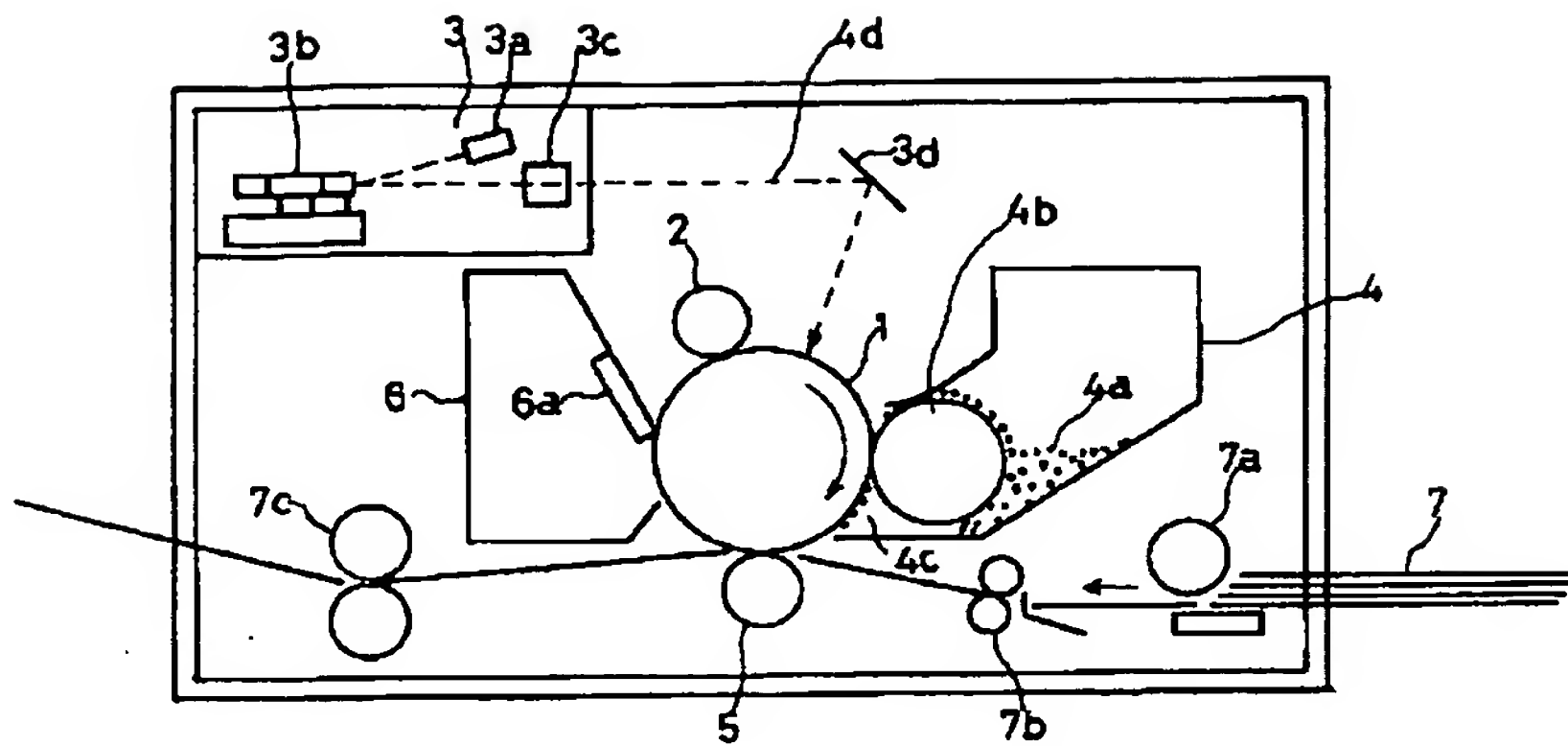
官能評価結果(本方式)

線圧 N/mm 厚さ	~10	10~20	20~30	30~
80 μ m	○	○	○	△
100 μ m	○	○	△	×
120 μ m	○	○	△	×

○:画質OK △:識別はできるがOK ×:画質NG

[Drawing 11]

図 11



[Drawing 12]

図 1 2

官能評価結果(従来方式)

線圧N/mm	2	3	4	5	6~
普通紙	○	○	△	×	×

○:画質OK △:識別はできるがOK ×:画質NG

(19)



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(54) **IMAGE FORMING DEVICE**

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(57) Abstract:

PROBLEM TO BE SOLVED: To obtain a high-quality transferred image without any image distortion by reducing the fluctuation of torque acting on the driving means of an image carrier.

SOLUTION: This image forming device in which a recording medium 7 is carried between the image carrier 1 and a pressure imparting member 5 disposed opposedly in press-contact with the carrier 1 and a toner image formed on the carrier 1 is transferred on the medium 7 or fixed simultaneously with the transfer is provided with a recording medium detection means 9c detecting the medium 7 carried to the press-contact part of the carrier 1 and the imparting member 5, a timing generation means 9b generating such timing that the medium 7 rushes in the press-contact part based on a signal detected by the detection means 9c and an image carrier load control means 9a controlling the braking load of an image carrier driving means 9 driving the carrier 1 according to a timing signal from the generation means 9b so that it is reduced or eliminated.

